



COATING PROCESS

In the 1970s, Lewis Research Center made an important contribution to the U.S. energy program, and to public acceptance of solar energy, by developing a highly efficient flat plate solar collector. Key to the collector's efficiency is a coating of black chrome on the plate; originally developed for use on spacecraft solar cells, the coating helps the collector absorb more Sun heat and prevents the heat from "reradiating," or escaping. Lewis found a commercially available coating—called Chromonyx® and produced by Harshaw Chemical Company—of particular interest because of its potential for high absorption. A search for a facility capable of electroplating large collectors for Lewis' evaluations led to Olympic Plating Industries, Inc., Canton, Ohio. Olympic and Harshaw Chemical teamed to set up the first Chromonyx black chrome plating facility; Lewis worked with Olympic to "fine tune" the process for maximum coating efficiency.

The result of a three year Lewis/Olympic collaboration was the company's development of a 13-step process—called BCO-91—for coating copper absorber plates with black chrome (above). It also resulted in formation of a spinoff company—Olympic Solar Corporation, Canton—to provide the electroplating service. Olympic Solar states that flat plate collectors enhanced by the BCO-91 coating technique convert 95 percent of the Sun's energy to heat and lose only five percent by reradiation. The company's process technology has been used on more than 20 million square feet of collector surfaces; at right is an example, Honeywell Inc.'s office building in Minneapolis, Minnesota. Olympic Solar is establishing a network of licensed facilities for the BCO-91 process; there are now three U.S. licensees and one each in Italy and Australia.

